

LIGNICOLOUS MARINE FUNGI FROM NEW ZEALAND

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ABSTRACT

Twenty species of wood inhabiting marine fungi collected from driftwood on the eastern coast of New Zealand are recorded. Twelve are new records for New Zealand, and of these, six have not previously been recorded from the Southern Hemisphere.

KEYWORDS: marine fungi, lignicolous, New Zealand.

INTRODUCTION

Wood floating for any time in the sea is likely to become colonized by marine fungi. Brooks, Goos and Sieburth (1972), examining driftwood, showed that hyphal penetration occurred throughout their samples.

Almost all reports of the distribution of lignicolous (wood inhabiting) marine fungi are confined to the Northern Hemisphere; information on the occurrence of these fungi in the temperate waters of the Southern Hemisphere is sparse. Hughes and Chamut (1971) listed fifteen species of wood inhabiting marine fungi from southern Chile. Jones, Kühne, Trussell and Turner (1972) reported on fungi attacking submerged panels of *Pinus sylvestris* at eighteen sites, including one each in Australia and New Zealand. Nine species were recorded from New Zealand. Cribb and Cribb (1955, 1956, 1960) recorded seven species of lignicolous fungi from Queensland waters.

This paper presents additional information on the occurrence and distribution of marine fungi on the east coast of New Zealand.

MATERIALS AND METHODS

494 samples of driftwood were collected from eight east coast beaches between North Auckland and North Canterbury. (Table 1). Samples were returned to the laboratory in polythene bags, transferred to moist chambers, and subsequently examined. A second examination, four months later failed to reveal the presence of further species.

Identification was by reference to Johnson and Sparrow (1961), Kohlmeyer and Kohlmeyer (1964-69, 1971, 1979), and to a reference collection of slides made under the supervision of Professor E.B.G. Jones at Portsmouth.

RESULTS

Results are presented in Table 1. *Corallospora maritima* was the only fungus found at all eight sites. With the exception of the sample from Tauranga Harbour, where they were found on the calcareous lining of marine borer tubes, the perithecia of this fungus were superficial on sand grains.

Halosphaeria mediosetigera perithecia, where present, occurred in large numbers.

The larger spored of the two *Lulworthia* species from Claverley and Oaro, was found as copious exudations of spores on the surface of borer infested wood. As the perithecia were deeply immersed in very hard wood it was not possible to ascertain their characters. Identification as *L. floridana* was based solely on spore dimensions of 290-310 x 3.5-5 μm , and on the presence of conical hyaline appendages 7.5-12.5 μm long. The spores of the other species found, from Clifton Beach, were slightly longer at 110-125 μm than the lengths usually quoted for *L. fucicola*, but as it conformed in all other respects it was placed in this species.

The Basidiomycete *Digitatospora marina* formed opalescent fructifications, easily visible to the naked eye, within the holes formed by marine borers in wood from Oaro and Claverley. This is the first report of a marine Basidiomycete from the Southern Hemisphere.

Additional fungi not previously reported from New Zealand are *Halosphaeria mediosetigera*, *H. appendiculata*, *H. torquata*, *H. hamata*, *Corallospora trifurcata*, *Remispora maritima*, *Nais inornata*, *Leptosphaeria* sp. *Carbosphaerella leptosphaeroides*, *Biconiosporella corniculata* and *Asteromyces cruciatus*.

Carbosphaerella leptosphaeroides, *Halosphaeria hamata*, *Nais inornata*, *Leptosphaeria* sp. and *Asteromyces cruciatus* are recorded for the first time from the Southern Hemisphere.

TABLE 1. MARINE FUNGI COLLECTED FROM EAST COAST BEACHES.

	Woodend 43° 40'S 172° 80'E	Claverley 42° 75'S 173° 40'E	Oaro 42° 60'S 173° 45'E	Kekerengu 42° 00'S 174° 00'E	Clifton 39° 80'S 177° 00'E	Tauranga 37° 80'S 176° 20'E	Leigh 36° 35'S 174° 100'E
Basidiomycetes							
<i>Digitatospora marina</i>		+	+				
Ascomycetes							
<i>Biconiosporella corniculata</i>	+			+			
<i>Carbosphaerella leptosphaeroides</i>					+		
<i>Ceriosporopsis halima</i>	+						
<i>Corallospora maritima</i>	+		+	+			
<i>C. trifurcata</i>				+			
<i>Halosphaeria appendiculata</i>	+						+
<i>H. hamata</i>							+
<i>H. mediosetigera</i>	+			+			+
<i>H. torquata</i>							
<i>Leptosphaeria</i> sp.			+				
<i>Lulworthia floridana</i>			+				
<i>L. fucicola</i>				+			
<i>Nais inornata</i>					+		
<i>Remispora maritima</i>							+
Fungi Imperfecti							
<i>Asteromyces cruciatus</i>							+
<i>Cirrenalia macrocephala</i>					+		
<i>Culcitalna achrospora</i>					+		+
<i>Dictyosporium pelagicum</i>					+		
<i>Monodictys pelagica</i>					+		

DISCUSSION

Knowledge of marine fungi from the Southern Hemisphere is particularly sparse. In this account twenty marine fungi found colonizing driftwood from the east coast of New Zealand are recorded. Of these, only three Ascomycetes, *Ceriosporopsis halima*, *Corallospora maritima* and *Lulworthia floridana*, and three Fungi Imperfecti, *Cirrenalia macrocephala*, *Monodictys pelagica*, and *Dictyosporium pelagicum* had previously been reported from New Zealand (Jones et al. 1972). Fungi previously reported but not found during this investigation were *Lulworthia purpurea*, *Torpedospora radiata* and *Zalerion maritima*. As the range of woods collected may have influenced the fungal species found, differences in the two lists from New Zealand are not considered significant.

Remispora maritima, *Halosphaeria appendiculata*, *H. torquata*, *Dictyosporium pelagicum* and *Monodictys pelagica* are common to Chile and New Zealand, while *Ceriosporopsis halima*, *Corallospora trifuncata*, *Halosphaeria appendiculata* and *H. mediosetigera* are common to Australia and New Zealand. All the species listed from New Zealand occur in the temperate waters of the Northern Hemisphere. The common presence in Queensland and New Zealand of *Halosphaeria mediosetigera* and *Ceriosporopsis halima*, considered by Hughes and Chamut (1971) as fungi typical of warm temperate waters, is in keeping with the pattern of warm oceanic currents flowing from the Queensland region to New Zealand.

From the limited evidence available, the species composition of the New Zealand marine mycoflora appears similar to that of comparable regions in the Northern Hemisphere and to that of Chile, and supports the concept of a bipolar distribution for these fungi of temperate waters. Collections from the far northern and far southern coasts may provide more definite evidence of distributional relationships between New Zealand and Queensland and New Zealand and Chile respectively.

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